

## **CLAIMS**

1. An antenna polymer useful as a photocatalyst in aqueous medium, the polymer comprising a polymeric backbone of a biodegradable water soluble polymer, and photoactive groups chemically bonded to the polymeric backbone.
2. An antenna polymer according to claim 1, wherein said biodegradable water soluble polymer is selected from natural and chemically modified polysaccharides.
3. An antenna polymer according to claim 2, wherein said polysaccharide is selected from the group consisting of starch, hydroxyethyl starch, dextran, hydroxymethyl cellulose and hydroxyethyl cellulose.
4. An antenna polymer according to claim 1, wherein said biodegradable water soluble polymer is selected from the group consisting of water soluble derivatives of proteins and water soluble derivatives of sugars.
5. An antenna polymer according to claim 4, wherein said biodegradable water soluble polymer is selected from the group consisting of chitosan, hyaluronic acid, amylopectin, alginates, xanthan and carrageenan.
6. An antenna polymer according to claim 1, wherein said biodegradable water soluble polymer is polyvinyl alcohol.
7. An antenna polymer according to any one of claims 1 to 6, wherein said photoactive groups are polycyclic fused ring aromatic groups.
8. An antenna polymer according to claim 7, wherein said photoactive groups are selected from the group consisting of naphthalene, anthracene, phenanthrene, and perylene.
9. An antenna polymer according to any one of claims 1 to 8, containing from 1 to 30 mole% of photoactive groups.

10. An antenna polymer according to claim 9, containing from 3 to 10 mole% of photoactive groups.
11. A process of conducting photochemical reactions in an aqueous medium, which comprises contacting the component or components of the reaction, in aqueous medium, in the presence of a catalytic amount of an antenna polymer comprising a polymeric backbone of a biodegradable water soluble polymer and photoactive groups chemically bonded to the polymeric backbone, to form a reaction medium, subjecting the reaction medium to UV-visible light to cause photochemical reaction, and, after the photochemical reaction is terminated, and subjecting the reaction medium to conditions favouring natural biodegradation of the residues of the antenna polymer.
12. A process according to claim 11, wherein said reaction medium is subjected to conditions favouring natural biodegradation by discharging the reaction medium into a natural body of water.
13. A process according to claim 12, wherein said antenna polymer is an antenna polymer according to any one of claims 1 to 10.
14. A process according to claim 12 or claim 13, wherein said photochemical reaction is the photocatalytic oxidation of cyanides in tailings from a gold mining operation, and said photoactive groups comprise naphthalene chromophores.